



ACCELERATED BRIDGE CONSTRUCTION
UNIVERSITY TRANSPORTATION CENTER

| UTC Project Information | |
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| Project Title | Laminated Wood Deck System for Folded Plate Girder |
| University | FIU |
| Principal Investigator | Azizinamini, Atorod |
| PI Contact Information | aazizina@fiu.edu |
| Funding Source(s) and Amounts Provided (by each agency or organization) | ABC-UTC Funds: \$85,000 FIU Match Funds: \$42,500 |
| Total Project Cost | Total Funds: \$127,500 |
| Agency ID or Contract Number | Accelerated Bridge Construction University Transportation Center (ABC-UTC) 69A3551747121 |
| Start and End Dates | 03/01/2019 – Active |
| Brief Description of Research Project | <p>Folded plate girder (FPG) is a superstructure bridge system which involves a cold bend out of a single sheet of steel with an open bottom flange. The cold bend eliminates the costly and inconsistent shop weld found in traditional girders. The FPG concept works for both traditional construction and accelerated bridge construction (ABC). In traditional construction, formwork is needed along with the placement of deck reinforcement then the concrete is placed. In ABC, the deck slab is fabricated in the factory with transverse steel reinforcing bars extended outside the cured slab portion to form closure joint with adjacent deck slab then ultra-high performance concrete (UHPC) is placed at closure joints. In order to reduce the construction time further, a laminated wood deck is suggested in this proposal in order to further accelerate the on-site construction. Many advantages can be achieved by integrating laminated wood deck with FPG such as lighter prefabricated modular unit, easy fabrication of the modular unit, reducing on-site construction by eliminated construction joints, and suitability for rural regions where heavy equipment or cranes are not accessible. The main objectives of this project are:</p> <ul style="list-style-type: none"> • Developing a new deck system for FPG using laminated wood deck panels to reduce the modular weight, minimizing on-site constructions and field closure joints, and facilitate the use of FPG in rural areas where heavy equipment and |

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| | <p>cranes are not accessible.</p> <ul style="list-style-type: none"> • Conducting proof of concept experimental work on full-scale FPG with laminated wood deck. • Assessment of the performance of the proposed deck system compared to a precast deck panel and traditional construction. • Developing finite element models for the proposed section for better understanding of system performance, therefore, extending the study to analyze other specimens which will not be possibly tested |
| <p>Describe Implementation of Research Outcomes (or why not implemented) Place Any Photos Here</p> | <p>The outcomes will be tracked and reported once they are identified.</p> |
| <p>Impacts/Benefits of Implementation (actual, not anticipated)</p> | <p>The impacts will be tracked and reported once they are identified.</p> |
| <p>Web Links</p> <ul style="list-style-type: none"> • Reports • Project website | <p>https://abc-utc.fiu.edu/research-projects/fiu-research-projects/laminated-wood-deck-system-for-folded-plate-girder/</p> |